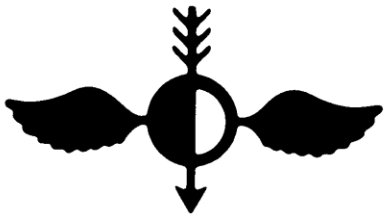
CHAPTER 5



AEROGRAPHER'S MATE
(AG)

NAVPERS 18068-5D
CH-63

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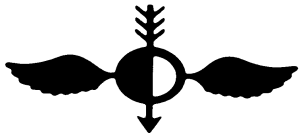
NAVY ENLISTED OCCUPATIONAL STANDARD

FOR

AEROGRAPHER'S MATE (AG)



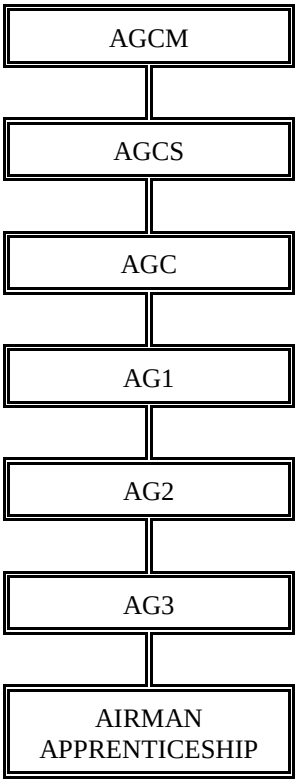
SCOPE OF RATING

Aerographer's Mates (AG) collect, measure, and analyze the elements of the physical environment (Land/Sea/Air/Space) and land/sea interface; synthesize a vast array of oceanographic, hydrographic, celestial, and meteorological data and in situ observations and measurements to produce forecasts and warnings in support of safety of flight, navigation, and naval/joint operations and missions; demonstrate expertise in METOC equipment and systems, Geospatial Information and Services (GIS), and tactical decision aids; combine knowledge of the operating environment with a thorough understanding of warfighting capabilities to assess and predict environmental impacts to friendly and enemy platforms, sensors, and weapon systems; develop actionable recommendations regarding tactics, techniques, and procedures that fully exploit environmental parameters, mitigate risk, and enable decision superiority across all warfighting areas and strategic and enabling capabilities; operate unmanned systems, small boats and expeditionary survey vehicles to collect meteorological, hydrographic and oceanographic data; and distribute data internally and externally to platforms and operational activities via communication devices, web-centric architecture, or on-scene in direct support of afloat units, fleet/joint staffs, or combatant/operational commanders.

This Occupational Standard is to be incorporated in Volume I, Part B, of the Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards (NAVPERS 18068F) in Chapter 5.

GENERAL INFORMATION

CAREER PATTERN



Normal path of advancement to Limited Duty Officer can be found in OPNAVINST 1420.1.

For rating entry requirements, refer to MILPERSMAN 1306-618.

SAFETY

The observance of Operational Risk Management (ORM) and proper safety precautions in all areas is an integral part of each billet and the responsibility of every Sailor; therefore, it is a universal requirement for all ratings.

Job Title **Job Code**

Meteorological and Oceanographic (METOC) Analyst 001695

Job Family	NOC	Short Title (30 Characters)	Short Title (14 Characters)
Life, Physical, and Social Science	TBD	METOC ANALYST	METOC ANALYST

Pay Plan	Career Field	Other Relationships and Rules
Enlisted	AG	Not Applicable

Job Description

Meteorological and Oceanographic (METOC) Analysts observe, measure, and collect atmospheric and oceanographic data, phenomena, and parameters that affect platforms, sensors, and weapon systems performance; interpret numerical prediction models and provide limited analysis of operationally significant weather data (e.g. cloud cover, freezing level, fronts and pressure centers, significant weather, and hazards to flight); conduct routine analysis of hydrographic features and elements on nautical/navigation charts and prepare routine forecasts of METOC conditions on Synoptic, Meso, and Micro scales in low risk operating areas; utilize tactical decision aids to generate graphical depictions of atmospheric refractive conditions and acoustic properties of the ocean; operate unmanned systems, small boats and expeditionary survey vehicles to collect meteorological, hydrographic and oceanographic data; process side-scan, multi-beam, and single-beam sonar imageries; brief current METOC conditions in support of Warfare Operations (e.g. Anti-Submarine Warfare (ASW), Mine Warfare (MIW), Strike Warfare (STW), Navy Special Warfare (NSW)); operate classified/unclassified software and systems; and communicate METOC information internally and externally to platforms and operational activities.

DoD Relationship

Group Title	*DoD Code*
Weather, General	142000

O*NET Relationship

Occupation Title	*SOC Code*	*Job Family*
Atmospheric and Space Scientists	19-2021.00	Life, Physical, and Social Science

Skills	Abilities
Science	*Information Ordering*
Critical Thinking	*Deductive Reasoning*
Speaking	*Oral Expression*
Operation and Control	*Written Expression*
Operations Analysis	*Flexibility of Closure*
Quality Control Analysis	*Speech Clarity*
Management of Material Resources	*Spatial Orientation*
Reading Comprehension	*Written Comprehension*
Writing	*Category Flexibility*
Coordination	*Problem Sensitivity*

ASSIMILATION, APPLICATION, AND PREDICTION

Paygrade	Task Type	Task Statements
E4	CORE	Conduct briefs of satellite derived meteorological features and elements

CHARACTERIZATION AND ANALYSIS

Paygrade	Task Type	Task Statements
E4	CORE	Analyze atmospheric refractive conditions
E4	CORE	Analyze bathythermographic data
E4	CORE	Analyze hydrographic data
E4	CORE	Analyze open ocean wave conditions (e.g. average and significant wave heights, lengths, and periods)
E4	CORE	Analyze sea ice conditions
E4	CORE	Analyze sea surface conditions (e.g. current direction and speed, ocean fronts and eddies, and sea surface temperature)

E4	CORE	Analyze Sound Speed Profile (SSP) (e.g. sonic layer depth, sound channels, best depth, cut-off frequencies, etc.)
E4	NON-CORE	Apply geospatial orientation on Meteorological and Oceanographic (METOC) products
E4	CORE	Brief basic Meteorological and Oceanographic (METOC) elements and features on climatological products and information
E4	NON-CORE	Brief hydrographic features and elements on nautical/navigation charts
E4	CORE	Brief meteorological features and elements on surface weather charts
E4	NON-CORE	Characterize hydrographic features and elements on nautical/navigation charts
E4	CORE	Characterize meteorological features and elements on constant pressure charts
E4	CORE	Characterize meteorological features and elements on surface weather charts
E4	CORE	Characterize meteorological features and elements on upper air data
E4	CORE	Characterize oceanographic features and elements on satellite imageries
E4	CORE	Characterize physical and biological properties of the oceans
E4	CORE	Characterize satellite imageries for meteorological features and elements
E4	CORE	Characterize severe weather (e.g. tornadoes, thunderstorms, hail, etc.)
E4	NON-CORE	Compile physical and biological data (e.g. bottom types, bioluminescence, etc.)
E4	NON-CORE	Conduct briefs of physical and biological properties of the ocean (e.g. bottom types, bioluminescence, etc.)
E5	NON-CORE	Conduct change detection analyses
E4	CORE	Conduct satellite derived oceanographic features and element briefs
E5	CORE	Develop tropical streamline analyses
E4	CORE	Evaluate ocean surface buoy data
E4	CORE	Evaluate ray trace diagrams
E4	NON-CORE	Generate graphical depictions of hydrographic properties of the ocean
E4	NON-CORE	Process multibeam sonar imageries
E4	NON-CORE	Process single beam sonar imageries

METEOROLOGICAL, OCEANOGRAPHIC, AND HYDROGRAPHIC DATA COLLECTION

Paygrade	**Task Type**	**Task Statements**
E4	CORE	Collect climatological data for long-range mission planning
E4	NON-CORE	Collect hydrographic data
E4	NON-CORE	Collect ocean bottom data using Unmanned Underwater Vehicles (UUV)
E4	NON-CORE	Collect satellite imagery using shipboard or shore-based satellite data terminal (e.g. SMQ-11 and FMQ-17)
E4	CORE	Compile astronomical data (e.g. solar, lunar, tidal)
E4	CORE	Measure current atmospheric conditions (e.g. land-based, shipboard, upper air, etc.)
E4	CORE	Observe surf conditions (e.g. breaker height, breaker type, breaker angle, etc.)
E4	NON-CORE	Perform small craft operations (e.g. Expeditionary Survey Vehicle (ESV), Combat Rubber Raiding Craft (CRRC), etc.)

E4	CORE	Plot ship Projected Intended Movement (PIM) and Movement Reports (MOVREP)
E4	NON-CORE	Process side-scan sonar imageries
E4	NON-CORE	Record current tidal observations
E4	CORE	Record current weather observations (e.g. land-based, shipboard, upper air, etc.)

METOC ADMINISTRATION, TRAINING, AND QUALITY CONTROL

Paygrade	Task Type	Task Statements
E4	CORE	Archive Meteorological and Oceanographic (METOC) data
E4	CORE	Conduct environmental observation quality control checks (e.g. surface, synoptic, surf, etc.)
E4	CORE	Disseminate Meteorological and Oceanographic (METOC) forecasts and products
E4	NON-CORE	Inspect Meteorological and Oceanographic (METOC) equipment
E4	CORE	Maintain Meteorological and Oceanographic (METOC) administrative files
E4	CORE	Maintain Meteorological and Oceanographic (METOC) publications and databases
E4	CORE	Maintain Tactical Decision Aid (TDA) sensor databases (e.g. Target Acquisition Weapons Software (TAWS), Advanced Refractive Effects Prediction System (AREPS), Personal Computer Interactive Multisensor Analysis Trainer (PCIMAT), etc.)
E4	CORE	Verify deployable Meteorological and Oceanographic (METOC) equipment readiness

SAFETY OF FLIGHT, NAVIGATION, AND INFRASTRUCTURE

Paygrade	Task Type	Task Statements
E4	CORE	Analyze radar data in support of flight operations (e.g. convective and nonconvective meteorological features significant to aircraft operations and safety, etc.)
E4	CORE	Assess aviation operations Meteorological and Oceanographic (METOC) support requirements
E4	CORE	Collect observed environmental conditions in the event of an aircraft mishap
E4	CORE	Conduct flight weather conditions and recommendations briefs
E4	CORE	Conduct sea ice conditions and forecasts briefs
E4	CORE	Conduct Terminal Aerodrome Forecast (TAF) briefs
E4	NON-CORE	Construct digital flight weather packages (e.g. ditch headings, satellite image, and flight level wind)
E4	NON-CORE	Create Optimum Path Aircraft Routing System (OPARS) customized flight plan predictions
E4	CORE	Develop Horizontal Weather Depictions (HWD) (e.g., cloud cover, freezing level, fronts and pressure centers, significant weather, hazards to flight)

TACTICAL/OPERATIONAL ASSESSMENTS AND RECOMMENDATIONS

Paygrade	Task Type	Task Statements
E4	CORE	Advise Chain of Command (COC) of environmental conditions impacting operations
E4	NON-CORE	Analyze acoustic and non-acoustic contacts
E4	CORE	Brief current local weather conditions, advisories, and warnings
E4	CORE	Conduct current Meteorological and Oceanographic (METOC) conditions briefs in support of warfare operations (e.g. Undersea Warfare (USW), Mine Warfare (MIW), Strike Warfare (STW), Intelligence, Surveillance, and Reconnaissance (ISR), etc.)
E4	NON-CORE	Conduct Meteorological and Oceanographic (METOC) training
E4	CORE	Create oceanographic acoustic prediction products (e.g. three-dimensional graphics, animations, audio, and tactical visualizations)
E4	CORE	Develop electromagnetic wave propagation predictions
E4	CORE	Develop electro-optic sensor predictions
E4	NON-CORE	Develop hydrographic mission planning briefs
E4	NON-CORE	Develop mosaic mapped imageries

Job Title **Job Code**

Meteorological and Oceanographic (METOC) Forecaster 001585

Job Family	NOC	Short Title (30 Characters)	Short Title (14 Characters)
Life, Physical, and Social Science	TBD	METOC FORECASTER	METOC FORCASTR

Pay Plan	Career Field	Other Relationships and Rules
Enlisted	AG	NEC 7412

Job Description

Meteorological and Oceanographic (METOC) Forecasters carry out a broad range of METOC forecasting activities to be performed in a wide variety of contexts, some of which are complex and non-routine; demonstrate personal autonomy and responsibility in the generation of METOC products and operational recommendations; demonstrate critical thinking and the capacity to apply scientific knowledge and skills in an integrated way; predict and assess the impact of the elements of the physical environment (Land/Sea/Air/Space) and land/sea interface on both friendly and enemy platforms, sensors and weapon system performance, safety of flight and navigation, and naval/joint operations and missions; evaluate numerical model performance to quantify the accuracy and reliability of future performance in low and moderate risk operating areas; analyze hydrographic features and elements on nautical/navigation charts and forecast METOC conditions on Synoptic, Meso, and Micro scales in moderate risk operating areas; analyze side-scan, multi-beam, and single-beam sonar imageries; collect and analyze ocean bottom data using unmanned underwater vehicles; create climatological studies supporting Naval Warfare Planning; produce forecasts and warnings; synthesize a vast array of Meteorological and Oceanographic data to characterize the operating environment and recommend courses of action to enhance the warfighters' ability to exploit the physical environment for successful mission accomplishment; brief forecasted METOC conditions in support of Warfare Operations (e.g. Anti-Submarine Warfare (ASW), Mine Warfare (MIW), Strike Warfare (STW), Navy Special Warfare (NSW)); and distribute data internally and externally to aircraft, ships, and shore activities via communication devices/web-centric architecture.

DoD Relationship **O*NET Relationship**

Group Title	*DoD Code*	*Occupation Title*	*SOC Code*	*Job Family*
Weather, General	142000	Atmospheric and Space Scientists	19-2021.00	Life, Physical, and Social Science

Skills	Abilities
Science	*Information Ordering*
Critical Thinking	*Written Expression*
Complex Problem Solving	*Deductive Reasoning*
Speaking	*Oral Expression*
Coordination	*Speech Clarity*
Judgment and Decision Making	*Inductive Reasoning*
Writing	*Speed of Closure*
Operations Analysis	*Flexibility of Closure*
Operation and Control	*Visualization*
Quality Control Analysis	*Written Comprehension*

ASSIMILATION, APPLICATION, AND PREDICTION

Paygrade	Task Type	Task Statements
E5	CORE	Assess climatological data for long-range mission planning
E4	CORE	Conduct briefs of satellite derived meteorological features and elements
E5	CORE	Develop prognostic blend weather charts
E5	NON-CORE	Develop submarine operations forecasts
E5	CORE	Develop synoptic-scale surface weather forecasts (e.g. tropical, mid-latitude, and arctic)
E5	CORE	Evaluate numerical model performance
E5	CORE	Forecast aircraft en route weather (e.g. ditch headings, aircraft icing, flight weather winds, altimeter settings, freezing levels, etc.)
E5	CORE	Forecast electromagnetic wave propagation

E5	CORE	Forecast flight weather, visibility, and cloud ceiling conditions (e.g. Visual Flight Rules (VFR), Instrument Flight Rules (IFR), Visual Meteorological Conditions (VMC), and Instrument Meteorological Conditions (IMC))
E5	CORE	Forecast jet stream positions and intensities
E5	CORE	Forecast long wave patterns
E5	CORE	Forecast movement and intensity changes in major short wave troughs and ridges
E5	CORE	Forecast movement and intensity changes in surface pressure systems and features
E5	CORE	Forecast oceanographic near shore conditions (e.g. littoral currents, speeds, and direction, temperatures, surf, etc.)
E5	CORE	Forecast precipitation types, intensities, and durations
E5	CORE	Forecast sea surface conditions (e.g. sea states, current direction and speed, ocean fronts and eddies, sea surface temperature, etc.)
E5	CORE	Forecast severe weather (e.g. tornados, thunderstorms, hail, etc.)
E5	CORE	Forecast sky conditions (e.g. cloud types, amounts, layer heights, etc.)
E5	CORE	Forecast sound propagation (e.g. sonic layer depth, sound channels, best depth, etc.)
E5	CORE	Forecast surface air temperatures (e.g. ambient air, dew point, heat stress, wind chill, etc.)
E5	CORE	Forecast synoptic-scale meteorological features and elements (e.g. pressure systems, frontal boundaries, cloud cover, precipitation, etc.)
E5	CORE	Forecast tropical cyclone development, movement, and intensity changes
E5	CORE	Forecast visibility obstructions (e.g. fog, rain, haze, smoke, etc.)
E5	CORE	Forecast wind conditions (e.g. direction, speed, character, shifts, etc.)
E5	CORE	Forecast wind shear and turbulence (e.g. types, intensities, levels, and locations)

CHARACTERIZATION AND ANALYSIS

Paygrade	**Task Type**	**Task Statements**
E4	CORE	Analyze atmospheric refractive conditions
E4	CORE	Analyze hydrographic data
E5	NON-CORE	Analyze hydrographic features and elements on nautical/navigation charts
E5	NON-CORE	Analyze imageries for environmental Essential Elements of Information (EEI)
E5	NON-CORE	Analyze impacts of clutter density data to mission timelines
E5	NON-CORE	Analyze Meteorological and Oceanographic (METOC) features and elements on full motion videos
E5	CORE	Analyze meteorological features and elements on constant pressure charts
E5	CORE	Analyze meteorological features and elements on satellite imageries
E5	CORE	Analyze meteorological features and elements on surface weather charts
E5	CORE	Analyze meteorological features and elements on upper air data
E5	CORE	Analyze ocean bottom characteristics (e.g. topography, sediment, etc.)

E5	NON-CORE	Analyze oceanographic features and elements on satellite imageries
E4	CORE	Analyze open ocean wave conditions (e.g. average and significant wave heights, lengths, and periods)
E5	CORE	Analyze physical and biological properties of the ocean
E5	CORE	Analyze prognostic weather charts
E5	NON-CORE	Analyze riverine imageries
E4	CORE	Analyze sea surface conditions (e.g. current direction and speed, ocean fronts and eddies, and sea surface temperature)
E5	NON-CORE	Analyze sonar imageries (e.g. side-scan, multibeam and single beam)
E4	CORE	Analyze Sound Speed Profile (SSP) (e.g. sonic layer depth, sound channels, best depth, cut-off frequencies, etc.)
E5	CORE	Analyze thickness and height change charts
E5	NON-CORE	Analyze Unmanned Underwater Vehicle (UUV) data
E5	CORE	Analyze vorticity charts
E4	NON-CORE	Apply geospatial orientation on Meteorological and Oceanographic (METOC) products
E4	CORE	Brief basic Meteorological and Oceanographic (METOC) elements and features on climatological products and information
E5	NON-CORE	Brief graphical depictions of hydrographic properties of the ocean
E4	NON-CORE	Brief hydrographic features and elements on nautical/navigation charts
E4	CORE	Brief meteorological features and elements on surface weather charts
E4	NON-CORE	Compile physical and biological data (e.g. bottom types, bioluminescence, etc.)
E4	NON-CORE	Conduct briefs of physical and biological properties of the ocean (e.g. bottom types, bioluminescence, etc.)
E5	NON-CORE	Conduct change detection analysis briefs
E4	CORE	Conduct satellite derived oceanographic features and element briefs
E5	CORE	Develop tropical streamline analyses
E5	NON-CORE	Evaluate Magnetic Anomaly Detection (MAD) Operational Effectiveness (MOE) charts
E4	CORE	Evaluate ocean surface buoy data
E4	CORE	Evaluate ray trace diagrams
E5	CORE	Evaluate stability indices on upper air profiles
E5	CORE	Evaluate surf observations
E4	NON-CORE	Generate graphical depictions of hydrographic properties of the ocean
E5	CORE	Integrate bathythermographic data into oceanographic prediction products
E7	NON-CORE	Validate hydrographic features and elements on nautical/navigation charts

METEOROLOGICAL, OCEANOGRAPHIC, AND HYDROGRAPHIC DATA COLLECTION

Paygrade	**Task Type**	**Task Statements**
E4	NON-CORE	Collect hydrographic data
E4	NON-CORE	Collect ocean bottom data using Unmanned Underwater Vehicles (UUV)
E4	NON-CORE	Collect satellite imagery using shipboard or shore-based satellite data terminal (e.g. SMQ-11 and FMQ-17)

E5	NON-CORE	Conduct launch and recovery of Unmanned Underwater Vehicles (UUV)
E4	NON-CORE	Perform small craft operations (e.g. Expeditionary Survey Vehicle (ESV), Combat Rubber Raiding Craft (CRRC), etc.)

METOC ADMINISTRATION, TRAINING, AND QUALITY CONTROL

Paygrade	Task Type	Task Statements
E4	CORE	Archive Meteorological and Oceanographic (METOC) data
E7	CORE	Compose Meteorological and Oceanographic (METOC) messages (e.g. Operational Task Report (OPTASK) Meteorological and Oceanographic (METOC), ANNEX H, Meteorological and Oceanographic (METOC) Letter of Instruction (LOI), etc.)
E6	CORE	Compose post-deployment Meteorological and Oceanographic (METOC) reports (e.g. lessons learned, operational impacts, equipment performance)
E6	NON-CORE	Compose tsunami reports
E5	CORE	Conduct Meteorological and Oceanographic (METOC) forecast and quality control checks
E5	NON-CORE	Develop Meteorological and Oceanographic (METOC) information for Daily Intentions Message System (DIMS)
E4	CORE	Disseminate Meteorological and Oceanographic (METOC) forecasts and products
E4	NON-CORE	Inspect Meteorological and Oceanographic (METOC) equipment
E5	NON-CORE	Issue emergency notification warnings
E4	CORE	Maintain Meteorological and Oceanographic (METOC) administrative files
E4	CORE	Maintain Meteorological and Oceanographic (METOC) publications and databases
E4	CORE	Maintain Tactical Decision Aid (TDA) sensor databases (e.g. Target Acquisition Weapons Software (TAWS), Advanced Refractive Effects Prediction System (AREPS), Personal Computer Interactive Multisensor Analysis Trainer (PCIMAT), etc.)
E4	CORE	Verify deployable Meteorological and Oceanographic (METOC) equipment readiness

SAFETY OF FLIGHT, NAVIGATION, AND INFRASTRUCTURE

Paygrade	Task Type	Task Statements
E4	CORE	Analyze radar data in support of flight operations (e.g. convective and nonconvective meteorological features significant to aircraft operations and safety, etc.)
E4	CORE	Assess aviation operations Meteorological and Oceanographic (METOC) support requirements
E5	CORE	Assess maritime operations Meteorological and Oceanographic (METOC) support requirements
E5	CORE	Assess operational risks due to hazardous environmental conditions
E5	CORE	Compose Meteorological and Oceanographic (METOC) advisories, watches, and warnings
E6	CORE	Compose tropical cyclone Conditions of Readiness (COR) recommendations and messages

E5	CORE	Conduct aviation operations forecast and recommendation briefs (e.g. Tactical Recovery of Aircraft and Personnel (TRAP), parachute operations, in-flight refueling, etc.)
E4	CORE	Conduct flight weather conditions and recommendations briefs
E4	CORE	Conduct sea ice conditions and forecasts briefs
E4	CORE	Conduct Terminal Aerodrome Forecast (TAF) briefs
E5	CORE	Develop afloat cyclic operations forecasts and products
E5	CORE	Develop aviation operations forecasts and recommendations (e.g. Tactical Recovery of Aircraft and Personnel (TRAP), parachute operations, in-flight refueling, etc.)
E5	CORE	Develop en route Routine Weather (WEAX) forecasts and recommendations (e.g. task force, task group, submarine, ice, graphical, etc.)
E4	CORE	Develop Horizontal Weather Depictions (HWD) (e.g., cloud cover, freezing level, fronts and pressure centers, significant weather, hazards to flight)
E5	NON-CORE	Develop International Submarine Escape and Rescue Liaison Office (ISMERLO) forecasts and recommendations
E5	CORE	Develop local area forecasts and products
E5	CORE	Develop Terminal Aerodrome Forecasts (TAF)
E5	CORE	Evaluate forecasted environmental conditions in the event of an aircraft mishap
E5	CORE	Forecast flight weather take-off, en route, and terminal conditions and recommendations
E5	CORE	Forecast ice accretion conditions at-sea
E6	CORE	Provide mitigation strategies to avoid hazardous environmental conditions
E5	CORE	Update flight weather forecasts and products

TACTICAL/OPERATIONAL ASSESSMENTS AND RECOMMENDATIONS

Paygrade	**Task Type**	**Task Statements**
E4	CORE	Advise Chain of Command (COC) of environmental conditions impacting operations
E5	NON-CORE	Analyze Meteorological and Oceanographic (METOC) impacts on Unmanned Underwater Vehicles (UUV)
E5	CORE	Assess astronomical data (e.g. solar, lunar and tidal)
E5	CORE	Brief at-sea operations forecasts, impacts, and recommendations (e.g. Underway Replenishment, Vertical Replenishment, and Visit Board, Search and Seizure, etc.)
E5	NON-CORE	Brief ballistic wind forecasts and recommendations
E6	NON-CORE	Brief chaff dispersion forecasts and recommendations
E5	CORE	Brief Chemical, Biological, Radiological, and Nuclear Explosive (CBRNE) forecasts and recommendations
E5	CORE	Brief communications forecasts, impacts, and recommendations
E4	CORE	Brief current local weather conditions, advisories, and warnings
E5	CORE	Brief forecasted atmospheric refractive conditions
E5	CORE	Brief oceanographic acoustic prediction assessments and recommendations
E5	CORE	Calculate evasion and detection depths

E5	NON-CORE	Conduct briefs of Non-combative Evacuation Operation (NEO) forecasts and recommendations
E5	CORE	Conduct forecasted Meteorological and Oceanographic (METOC) conditions briefs in support of warfare operations (e.g. Undersea Warfare (USW), Mine Warfare (MIW), Strike Warfare (STW), Intelligence, Surveillance, and Reconnaissance (ISR), etc.)
E4	NON-CORE	Conduct Meteorological and Oceanographic (METOC) training
E5	CORE	Conduct Operating Area (OPAREA) forecasts, impacts, and recommendations briefs (e.g. port operations, gas and oil platform, inner harbor, etc.)
E5	NON-CORE	Conduct riverine imagery briefs
E5	CORE	Conduct Search and Rescue (SAR) forecasts and recommendations briefs
E5	CORE	Conduct surf forecasts and recommendations briefs
E5	CORE	Conduct target area forecasts and recommendations briefs
E4	CORE	Create oceanographic acoustic prediction products (e.g. three-dimensional graphics, animations, audio, and tactical visualizations)
E5	CORE	Develop amphibious warfare operations forecasts and recommendations
E5	CORE	Develop at-sea operations forecasts, impacts, and recommendations (e.g. Underway Replenishment, Vertical Replenishment, and Visit Board, Search and Seizure)
E5	CORE	Develop aviation strike operations forecasts and recommendations
E5	NON-CORE	Develop ballistic wind forecasts and recommendations
E5	NON-CORE	Develop chaff dispersion forecasts and recommendations
E5	CORE	Develop Chemical, Biological, Radiological, and Nuclear Explosive (CBRNE) forecasts and recommendations
E5	CORE	Develop communications forecasts, impacts, and recommendations
E4	CORE	Develop electromagnetic wave propagation predictions
E5	CORE	Develop expeditionary forecasts and recommendations
E5	NON-CORE	Develop Extended Echo Ranging (EER) forecasts and recommendations
E5	NON-CORE	Develop ground operating area forecasts and recommendations (e.g. civil affairs, direct action mission, ground operations, etc.)
E4	NON-CORE	Develop hydrographic mission planning briefs
E6	NON-CORE	Develop hydrographic mission planning recommendations
E5	NON-CORE	Develop Intelligence, Surveillance, and Reconnaissance (ISR) forecasts and recommendations
E5	CORE	Develop Meteorological and Oceanographic (METOC) pre-deployment briefs
E5	NON-CORE	Develop Mine Warfare (MIW) forecasts, summaries, and recommendations (e.g. plans, bottom characteristics, etc.)
E4	NON-CORE	Develop mosaic mapped imageries
E5	NON-CORE	Develop Non-combative Evacuation Operation (NEO) forecasts and recommendations
E5	CORE	Develop Operating Area (OPAREA) forecasts, impacts and recommendations (e.g. port operations, gas and oil platform, inner harbor, etc.)

E5	NON-CORE	Develop riverine forecasts and recommendations
E5	CORE	Develop Search and Rescue (SAR) forecasts and recommendations
E5	NON-CORE	Develop special operations forecasts and recommendations (e.g. psychological, swimmer, strategic and tactical reconnaissance)
E5	NON-CORE	Develop Special Warfare (SPECWAR) mission forecasts and recommendations (e.g. SEAL Delivery Vehicle (SDV), Special Boat Team (SBT), Technical Surveillance and Reconnaissance (TSR))
E5	CORE	Develop surf forecasts and recommendations
E5	CORE	Develop Tactical Atmospheric Summaries (TAS)
E5	CORE	Develop Tactical Oceanographic Summaries (TOS)
E5	CORE	Develop tactical recommendations based on Tactical Decision Aid (TDA) output (e.g. Target Acquisition Weapons Software (TAWS), Advanced Refractive Effects Prediction System (AREPS), etc.)
E5	CORE	Develop target area forecasts and recommendations
E5	CORE	Develop Undersea Warfare (USW) forecasts and recommendations
E5	NON-CORE	Develop Unmanned Aerial Vehicle (UAV) forecasts and recommendations
E5	NON-CORE	Develop Unmanned Underwater Vehicle (UUV) forecasts and recommendations
E6	CORE	Establish Meteorological and Oceanographic (METOC) support requirements for warfare operations (e.g. Mine Warfare (MIW), Anti-Submarine Warfare (ASW), StrikeWarfare (STW), etc.)
E5	CORE	Evaluate impact of upwelling on operations
E5	CORE	Evaluate upper air profiles for meteorological impacts (e.g. freezing level, icing, inversions, turbulence, etc.)
E6	CORE	Exploit physical and biological properties of the ocean
E5	CORE	Forecast acoustic parameters and ranges (e.g. passive and active ranges, ambient noise, cutoff frequencies, etc.)
E5	CORE	Forecast atmospheric effects on electro-optic sensors and weapons
E6	CORE	Provide Meteorological and Oceanographic (METOC) impact recommendations for warfare mission plans
E5	NON-CORE	Validate acoustic and non-acoustic contacts

Job Title **Job Code**

Master Meteorological and Oceanographic (METOC) Forecaster 001640

Job Family	NOC	Short Title (30 Characters)	Short Title (14 Characters)
Life, Physical, and Social Science	TBD	MASTER METOC FORECASTER	MSTRMETOCFORC

Pay Plan	Career Field	Other Relationships and Rules
Enlisted	AG	NEC 7412

Job Description

Master Meteorological and Oceanographic (METOC) Forecasters apply a significant range of fundamental scientific principles and complex techniques across a wide and often unpredictable variety of contexts; demonstrate substantial personal autonomy and responsibility in the generation of METOC products and operational recommendations; establish METOC support requirements to provide the most relevant products for operational and mission success; evaluate numerical model performance to quantify the accuracy and reliability of future performance in high risk operating areas; analyze hydrographic features and elements on nautical/navigation charts and the physical and biological properties of the oceans and forecast METOC conditions on Synoptic, Meso, and Micro scales in complex environments; validate side-scan, multi-beam, and single-beam sonar imageries; develop tactical recommendations based on forecasted atmospheric refractive conditions and acoustic properties of the ocean generated by tactical decision aid output; coordinate continuity of support with other METOC activities; integrate impacts of the physical environment into warfighter mission plans; manage METOC quality control and environmental impact metrics programs; ensure operational success through effective leadership of personnel, training, re-training and management of METOC assets; comply with international and governmental regulations, local procedures, and established priorities; and develop solutions to meet METOC equipment acquisition and training programs

DoD Relationship		O*NET Relationship		
Group Title	*DoD Code*	*Occupation Title*	*SOC Code*	*Job Family*
Weather, General	142000	Atmospheric and Space Scientists	19-2021.00	Life, Physical, and Social Science

Skills	Abilities
Science	*Oral Expression*
Critical Thinking	*Deductive Reasoning*
Complex Problem Solving	*Information Ordering*
Coordination	*Inductive Reasoning*
Speaking	*Written Expression*
Management of Material Resources	*Speech Clarity*
Systems Evaluation	*Problem Sensitivity*
Quality Control Analysis	*Oral Comprehension*
Management of Personnel Resources	*Perceptual Speed*
Judgment and Decision Making	*Speed of Closure*

ASSIMILATION, APPLICATION, AND PREDICTION

Paygrade	Task Type	Task Statements
E4	CORE	Conduct briefs of satellite derived meteorological features and elements
E7	CORE	Evaluate advanced physics-based effects (e.g. dynamics, kinematics, thermodynamics, etc.)
E5	CORE	Evaluate numerical model performance
E5	CORE	Forecast electromagnetic wave propagation
E5	CORE	Forecast severe weather (e.g. tornados, thunderstorms, hail, etc.)
E5	CORE	Forecast tropical cyclone development, movement, and intensity changes
E7	CORE	Quantify operational risks utilizing stochastic model output
E7	CORE	Synthesize performance trends of multiple numerical models
E6	CORE	Validate severe weather advisories, watches and warnings (e.g. tornadoes, thunderstorms and hail)

CHARACTERIZATION AND ANALYSIS

Paygrade	Task Type	Task Statements
E4	CORE	Analyze atmospheric refractive conditions
E5	CORE	Analyze meteorological features and elements on constant pressure charts
E5	NON-CORE	Analyze oceanographic features and elements on satellite imageries
E4	CORE	Brief basic Meteorological and Oceanographic (METOC) elements and features on climatological products and information
E5	NON-CORE	Brief graphical depictions of hydrographic properties of the ocean
E4	NON-CORE	Brief hydrographic features and elements on nautical/navigation charts
E4	CORE	Brief meteorological features and elements on surface weather charts
E7	CORE	Conduct advanced remote sensing analyses
E4	CORE	Conduct satellite derived oceanographic features and element briefs
E6	CORE	Enhance meteorological features and elements in multi-channel satellite derived imageries
E7	CORE	Evaluate stochastic model outputs
E4	NON-CORE	Generate graphical depictions of hydrographic properties of the ocean
E7	NON-CORE	Validate change detection analysis results
E7	NON-CORE	Validate hydrographic features and elements on nautical/navigation charts
E7	NON-CORE	Validate multibeam sonar imageries
E7	NON-CORE	Validate side-scan sonar imageries
E7	NON-CORE	Validate single beam sonar imageries

METEOROLOGICAL, OCEANOGRAPHIC, AND HYDROGRAPHIC DATA COLLECTION

Paygrade	Task Type	Task Statements
E7	CORE	Coordinate with mission planners and oceanographers to develop Water Sampling Plan (WSP)

METOC ADMINISTRATION, TRAINING, AND QUALITY CONTROL

Paygrade	Task Type	Task Statements
E7	NON-CORE	Advise command leadership on status of manpower and infrastructure requirements
E7	NON-CORE	Arrange travel and logistics for deployable Meteorological and Oceanographic (METOC) teams
E7	CORE	Compose Meteorological and Oceanographic (METOC) situation reports
E6	CORE	Compose post-deployment Meteorological and Oceanographic (METOC) reports (e.g. lessons learned, operational impacts, equipment performance)
E6	NON-CORE	Compose tsunami reports
E7	NON-CORE	Coordinate required support with oceanography subject matter experts (e.g. acoustics, bathymetry and hydrography)
E4	CORE	Disseminate Meteorological and Oceanographic (METOC) forecasts and products
E7	CORE	Establish Meteorological and Oceanographic (METOC) support requirements for allied and coalition forces
E7	CORE	Evaluate ship's surface weather observation programs

E4	NON-CORE	Inspect Meteorological and Oceanographic (METOC) equipment
E4	CORE	Maintain Tactical Decision Aid (TDA) sensor databases (e.g. Target Acquisition Weapons Software (TAWS), Advanced Refractive Effects Prediction System (AREPS), Personal Computer Interactive Multisensor Analysis Trainer (PCIMAT), etc.)
E7	CORE	Manage Continuity of Operations Plans (COOP) and post-disaster contingency plans
E7	CORE	Manage deployable Meteorological and Oceanographic (METOC) team operational plans, schedules, and logistics
E7	CORE	Manage Meteorological and Oceanographic (METOC) certification and assessment programs
E7	CORE	Manage Meteorological and Oceanographic (METOC) equipment maintenance (e.g. Naval Integrated Tactical Environmental Suite (NITES), Unmanned Underwater Vehicle (UUV), Expeditionary Survey Vehicle (ESV), etc.)
E7	NON-CORE	Manage Meteorological and Oceanographic (METOC) quality control programs
E7	CORE	Manage Meteorological and Oceanographic (METOC) training and qualification programs
E7	CORE	Validate Meteorological and Oceanographic (METOC) forecast and product accuracy
E4	CORE	Verify deployable Meteorological and Oceanographic (METOC) equipment readiness

SAFETY OF FLIGHT, NAVIGATION, AND INFRASTRUCTURE

Paygrade	**Task Type**	**Task Statements**
E6	CORE	Analyze radar data in support of resource protection (e.g. severe weather potential, precipitation type and intensity, storm tracking surveillance, etc.)
E5	CORE	Assess operational risks due to hazardous environmental conditions
E7	CORE	Assign level of risk associated with severe weather
E6	CORE	Compose tropical cyclone Conditions of Readiness (COR) recommendations and messages
E7	CORE	Conduct tropical cyclone aircraft sortie recommendations briefs
E7	CORE	Conduct tropical cyclone ship evasion and sortie recommendations briefs
E7	NON-CORE	Coordinate International Submarine Escape and Rescue Liaison Office (ISMERLO) support requirements
E5	NON-CORE	Develop International Submarine Escape and Rescue Liaison Office (ISMERLO) forecasts and recommendations
E7	CORE	Develop Optimum Track Ship Routing (OTSR) surveillance advisories and recommendations
E7	CORE	Develop tropical cyclone aircraft sortie recommendations
E7	CORE	Develop tropical cyclone ship evasion and sortie recommendations
E7	CORE	Maintain continuity of support with other Meteorology and Oceanography (METOC) activities
E7	CORE	Manage aviation safety Meteorological and Oceanographic (METOC) support requirements

E7	CORE	Manage maritime safety Meteorological and Oceanographic (METOC) support requirements
E7	NON-CORE	Manage mishap (aircraft, ship, infrastructure, personnel) environmental conditions reconstruction
E6	CORE	Provide mitigation strategies to avoid hazardous environmental conditions

TACTICAL/OPERATIONAL ASSESSMENTS AND RECOMMENDATIONS

Paygrade	**Task Type**	**Task Statements**
E4	CORE	Advise Chain of Command (COC) of environmental conditions impacting operations
E7	CORE	Analyze Meteorological and Oceanographic (METOC) environmental data requests
E5	CORE	Assess astronomical data (e.g. solar, lunar and tidal)
E7	CORE	Assess environmental impacts to the Electro-Magnetic Spectrum (EMS)
E4	CORE	Brief current local weather conditions, advisories, and warnings
E7	NON-CORE	Brief impacts of clutter density data to mission timelines
E5	CORE	Calculate evasion and detection depths
E5	NON-CORE	Conduct briefs of Non-combative Evacuation Operation (NEO) forecasts and recommendations
E6	CORE	Conduct Meteorological and Oceanographic (METOC) support capabilities briefs
E4	NON-CORE	Conduct Meteorological and Oceanographic (METOC) training
E5	CORE	Conduct surf forecasts and recommendations briefs
E6	CORE	Conduct tactical Meteorological and Oceanographic (METOC) recommendations briefs in support of warfare operations (e.g. Undersea Warfare (USW), Mine Warfare (MIW), Strike Warfare (STW), Intelligence, Surveillance, and Reconnaissance (ISR), etc.)
E5	CORE	Conduct target area forecasts and recommendations briefs
E6	NON-CORE	Develop hydrographic mission planning recommendations
E5	NON-CORE	Develop Non-combative Evacuation Operation (NEO) forecasts and recommendations
E5	CORE	Develop surf forecasts and recommendations
E7	CORE	Develop tactical oceanographic acoustic prediction assessments and recommendations
E5	CORE	Develop tactical recommendations based on Tactical Decision Aid (TDA) output (e.g. Target Acquisition Weapons Software (TAWS), Advanced Refractive Effects Prediction System (AREPS), etc.)
E5	CORE	Develop target area forecasts and recommendations
E6	CORE	Establish Meteorological and Oceanographic (METOC) support requirements for warfare operations (e.g. Mine Warfare (MIW), Anti-Submarine Warfare (ASW), Strike Warfare (STW), etc.)
E5	CORE	Evaluate impact of upwelling on operations
E7	CORE	Exploit bathythermographic data
E7	CORE	Exploit climatological data for long-range mission planning

E7	CORE	Exploit meteorological features and elements on upper air data
E6	CORE	Exploit physical and biological properties of the ocean
E7	CORE	Formulate Meteorological and Oceanographic (METOC) operational risk management outcomes and recommendations (e.g. offensive and defensive).
E7	CORE	Liaise with Defense Threat Reduction Agency (DTRA) to support Chemical, Biological, Radiological, and Nuclear Explosive (CBRNE) events
E6	CORE	Provide Meteorological and Oceanographic (METOC) impact recommendations for warfare mission plans
E7	CORE	Provide recommendations for sensor and weapon employment and laydown